



DEPARTMENT OF HEALTH & HUMAN SERVICES

Public Health Service

Agency for Toxic Substances
and Disease Registry
Atlanta GA 30333

91661

January 8, 1996

Mr. Edward Hanlon
Environmental Protection Agency
Region V
77 West Jackson
MailCode HSRM-6J
Chicago, IL 60604

Dear Mr. Hanlon:

Enclosed please find a copy of the Agency for Toxic Substances and Disease Registry (ATSDR) Petitioned Public Health Assessment Addendum-Public Comment Release for the Fields Brook (Specifically Concerning Radiological Contaminants at Reactive Metals Incorporated), dated January 8, 1996. This document is ATSDR's evaluation of data and information on the release of contaminants into the environment from the Fields Brook (Specifically Concerning Radiological Contaminants at Reactive Metals Incorporated), Ashtabula, Ashtabula County, Ohio. The purpose of this document is to assess any current or future impact on public health.

The ATSDR will accept written comments from the public until February 20, 1996. Correspondence should be addressed to the Chief, Program Evaluation, Records, and Information Services Branch, Division of Health Assessment and Consultation, ATSDR, Mailstop E-56, 1600 Clifton Road, N.E., Atlanta, Georgia 30333.

If you have any questions, please do not hesitate to call Michael Brooks, the health assessor, at (404) 639-6053.

Sincerely yours,

Cardace L. Davis

for Max M. Howie, Jr.
Chief, Program Evaluation, Records,
and Information Services Branch
Division of Health Assessment
and Consultation

Enclosures

**Public Health
Assessment
for**

**PETITIONED PUBLIC HEALTH ASSESSMENT ADDENDUM
FIELDS BROOK (SPECIFICALLY CONCERNING RADIOLOGICAL
CONTAMINANTS AT REACTIVE METALS INCORPORATED)
ASHTABULA, ASHTABULA COUNTY, OHIO
CERCLIS NO. OH 080614572
JANUARY 6, 1996**

For Public Comments

**U.S. DEPARTMENT OF HEALTH & HUMAN SERVICES
Public Health Service
Agency for Toxic Substances and Disease Registry**

Comment Period Ends:

FEBRUARY 20, 1996



THE ATSDR PUBLIC HEALTH ASSESSMENT: A NOTE OF EXPLANATION

This Public Health Assessment-Public Comment Release was prepared by ATSDR pursuant to the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA or Superfund) section 104 (i)(6) (42 U.S.C. 9604 (i)(6)), and in accordance with our implementing regulations 42 C.F.R. Part 90). In preparing this document, ATSDR has collected relevant health data, environmental data, and community health concerns from the Environmental Protection Agency (EPA), state and local health and environmental agencies, the community, and potentially responsible parties, where appropriate. This document represents the Agency's best efforts, based on currently available information, to fulfill the statutory criteria set out in CERCLA section 104 (i)(6) within a limited timeframe. To the extent possible, it presents an assessment of the potential risks to human health. Actions authorized by CERCLA section 104 (i)(11), or otherwise authorized by CERCLA, may be undertaken to prevent or mitigate human exposure or risks to human health. In addition, ATSDR will utilize this document to determine if follow-up health actions are appropriate at this time.

This document has been provided to EPA and the affected state in an initial release, as required by CERCLA section 104 (i)(6)(H) for their information and review. Where necessary, it has been revised in response to comments or additional relevant information provided by them to ATSDR. This revised document has now been released for a 30 day public comment period. Subsequent to the public comment period, ATSDR will address all public comments and revise or append the document as appropriate. The public health assessment will then be reissued. This will conclude the public health assessment process for this site, unless additional information is obtained by ATSDR which, in the Agency's opinion, indicates a need to revise or append the conclusions previously issued.

Agency for Toxic Substances and Disease Registry.....David Satcher, M.D., Ph.D., Administrator
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Use of trade names is for identification only and does not constitute endorsement by the Public Health Service or the U.S. Department of Health and Human Services.

Please address comments regarding this report to:

Agency for Toxic Substances and Disease Registry
Division of Health Assessment and Consultation
Attn: Chief, Program Evaluation, Records, and Information Services Branch, E-56
1600 Clifton Road, N.E., Atlanta, Georgia 30333

PETITIONED PUBLIC HEALTH ASSESSMENT ADDENDUM
FIELDS BROOK (SPECIFICALLY CONCERNING RADIOLOGICAL
CONTAMINANTS AT REACTIVE METALS INCORPORATED)
ASHTABULA, ASHTABULA COUNTY, OHIO
CERCLIS NO. 81509614872
JANUARY 1996

For Public Comments

U.S. DEPARTMENT OF HEALTH & HUMAN SERVICES
Public Health Service
Agency for Toxic Substances and Disease Registry

Comment Period Ends:

FEBRUARY 20, 1996

PETITIONED PUBLIC HEALTH ASSESSMENT ADDENDUM

FIELDS BROOK

(SPECIFICALLY CONCERNING RADIOLOGICAL CONTAMINANTS
AT REACTIVE METALS INCORPORATED)

ASHTABULA, ASHTABULA COUNTY, OHIO

CERCLIS NO. OHD980614572

Prepared by

U.S. DEPARTMENT OF HEALTH AND HUMAN SERVICES
PUBLIC HEALTH SERVICES
AGENCY FOR TOXIC SUBSTANCES AND DISEASE REGISTRY
DIVISION OF HEALTH ASSESSMENT AND CONSULTATION
ATLANTA, GEORGIA

FOREWORD

The Agency for Toxic Substances and Disease Registry, ATSDR, is an agency of the U.S. Public Health Service. It was established by Congress in 1980 under the Comprehensive Environmental Response, Compensation, and Liability Act, also known as the Superfund law. This law set up a fund to identify and clean up our country's hazardous waste sites. The Environmental Protection Agency, EPA, and the individual states regulate the investigation and clean up of the sites.

Since 1986, ATSDR has been required by law to conduct a public health assessment at each of the sites on the EPA National Priorities List. The aim of these evaluations is to find out if people are being exposed to hazardous substances and, if so, whether that exposure is harmful and should be stopped or reduced. (The legal definition of a health assessment is included on the inside front cover.) If appropriate, ATSDR also conducts public health assessments when petitioned by concerned individuals. Public health assessments are carried out by environmental and health scientists from ATSDR and from the states with which ATSDR has cooperative agreements.

Exposure: As the first step in the evaluation, ATSDR scientists review environmental data to see how much contamination is at a site, where it is, and how people might come into contact with it. Generally, ATSDR does not collect its own environmental sampling data but reviews information provided by EPA, other government agencies, businesses, and the public. When there is not enough environmental information available, the report will indicate what further sampling data is needed.

Health Effects: If the review of the environmental data shows that people have or could come into contact with hazardous substances, ATSDR scientists then evaluate whether or not there will be any harmful effects from these exposures. The report focuses on public health, or the health impact on the community as a whole, rather than on individual risks. Again, ATSDR generally makes use of existing scientific information, which can include the results of medical, toxicologic and epidemiologic studies and the data collected in disease registries. The science of environmental health is still developing, and sometimes scientific information on the health effects of certain substances is not available. When this is so, the report will suggest what further research studies are needed.

Conclusions: The report presents conclusions about the level of health threat, if any, posed by a site and recommends ways to stop or reduce exposure in its public health action plan. ATSDR is primarily an advisory agency, so usually these reports

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SITE SUMMARY

The RMI Extrusion Plant, a subsidiary of Reactive Metals, Inc., a subcontractor to the Department of Energy (DOE), is in the northeastern corner of Ashtabula County, Ohio, about three miles east of the center of the city of Ashtabula.

The subcontracted work performed for DOE included extrusion of depleted uranium (< 0.2% U-235), and of slightly enriched uranium (> 0.72% U-235) ingots into rods or tubes. RMI holds a Nuclear Regulatory Commission (NRC) license and a Resource Conservation Recovery Act of 1976 (RCRA) permit to store mixed wastes, granted by the Environmental Protection Agency (EPA). The plant is at the geometric center of the Fields Brook National Priorities List (NPL) Site, CERCLIS NO. OHD980614572.

The Agency for Toxic Substances and Disease Registry (ATSDR) prepared a public health assessment for the Fields Brook NPL site in 1986. ATSDR has conducted a review of the currently available environmental data and has prepared this addendum to that public health assessment to deal mainly with the possible radioactive contamination of the Fields Brook Site from RMI operations.

Sampling of environmental media on site (air, soil, sediments, surface water, and groundwater), has shown contamination with uranium, technetium-99, and trichloroethylene (TCE). Off-site samples have shown only a small area of uranium-contaminated soil, just outside the northeastern fence. The plant is fenced and has a manned security system, which precludes public access and prevents public exposure.

Analysis of the environmental data show that there is no apparent public health hazard associated with the RMI facility. To reduce levels of uranium-contaminated soils outside the plant to the published standard maximum levels, ATSDR recommends that the soils be cleaned up when RMI cleans up the site.

BACKGROUND

A. SITE DESCRIPTION AND HISTORY

The RMI Extrusion Plant (RMI) is a privately-owned 26-acre site, at East 21st Street in the city of Ashtabula, Ohio. RMI is the geographic center of the Fields Brook National Priorities List (NPL) Site, for which ATSDR released a completed public health assessment on November 7, 1986 [1]. In the original public health assessment, ATSDR concluded that portions of Fields Brook and its tributaries were contaminated with toxic chemicals, and that exposure to contaminants by way of absorption through skin or through ingestion may present an unnecessary health risk to young children. ATSDR further recommended:

1. prevention of community access to contaminated portions of Fields Brook and its sediments;
2. maintenance of the Ohio Department of Health Advisory and the state EPA health advisory for fishing in Fields Brook and in portions of the Ashtabula River;
3. evaluation of soil for site contaminants, both on site and off, including soil surrounding private residences;
4. evaluation of groundwater for site contaminants, and
5. consideration of an air monitoring study to define the sources of contamination and the risk for area residents and workers to be exposed to airborne contaminants.

The Sierra Club of Northeast Ohio petitioned ATSDR on August 20, 1989, to consider the possibility of contamination from the RMI Extrusion Plant because the original health assessment did not discuss releases of radioactive contamination from RMI, or releases of radionuclides into Fields Brook.

The RMI plant has performed uranium extrusion operations for the U.S. Department of Energy (DOE) under a subcontract with Westinghouse Materials Company of Ohio since 1962. The principal activity of the Extrusion Plant has been the conversion of depleted and slightly enriched uranium ingots into rods or tube shapes by extrusion. The extrusion is by means of a 3,850 ton hydropress. The products are cut, straightened, pickled in an acid bath, and machined. The principal contaminants are insoluble oxides of uranium that were released into the air and water from 1962 until 1989. The plant has Nuclear Regulatory Commission (NRC) license SMB-602, and has produced depleted uranium projectiles for the Department of Defense (DOD) under DOE Contract Number DE-AC05-76OR01405 [2].

In the past, RMI has emitted uranium metal and oxide dusts through six stacks, and has disposed of uranium process water in Fields Brook. Fields Brook, which flows through the NPL Site that bears its name, is a 3.5-mile tributary of the Ashtabula River that discharges into Lake Erie, the source of drinking water for the city of Ashtabula. Fields Brook flows through an industrial area that is one of the largest and most diversified concentrations of

C. DEMOGRAPHICS, LAND USE, AND NATURAL RESOURCES USE

DEMOGRAPHICS

The Fields Brook site is in the city of Ashtabula, Ashtabula County, Ohio. Ashtabula is on Lake Erie in northeastern Ohio, approximately 20 miles from the Pennsylvania state line and 50 miles northeast of Cleveland. The National Priorities List (NPL) site is on the northeastern side of the city, about three miles from the city center.

Ashtabula has experienced a slow rate of population decline since 1960, including a drop of 5.4 percent from 1980 to 1986 (see Table 1). This trend is typical of many industrial cities in this region, and is due to out-migration. The county population declined by approximately three percent from 1980 to 1986.

The population of the city is predominantly white. The percentage of the population under age ten fell substantially from 1960 to 1980, because birth rates were declining and because young families with children were moving out of the area. Conversely, the percentage of elderly persons rose from 10 to 14 percent, because the elderly in their retirement years are less likely to move away.

The percentage of persons below poverty level was 11.5 percent in 1980, compared to the state average of 10.3. Median household income was \$14,881 at that time, while the state median was \$17,754.

LAND USE AND NATURAL RESOURCES USE

The RMI Extrusion Plant (RMI) is a privately owned company consisting of eight buildings on a 26-acre site, located at East 21st Street in the city of Ashtabula, Ashtabula County, Ohio. RMI is at the geographic center of the Fields Brook National Priorities List (NPL) Site. Facility access is restricted by a fence and guard system. Fields Brook, which flows through the NPL Site that bears its name, is a 3.5-mile tributary of the Ashtabula River which discharges into Lake Erie, the source of drinking water for the city of Ashtabula. Fields Brook flows through an industrial area that is one of the largest and most diversified concentrations of chemical plants in the state of Ohio. Fields Brook is the principal receiving stream for many industrial discharges. The brook flows past a school and through a residential area of Ashtabula that is downstream from the industrial area. There were no physical hazards evident during the site visit.

Residential areas are situated clockwise from the southeast to the west of the RMI plant. North of the facility are warehouses, and docks on Lake Erie. To the east of RMI is all heavy industry and chemical plants. The population density is lowest to the east and northeast,

site. The state of Ohio does not at present have any health registry in place to keep records of specific adverse health outcomes.

COMMUNITY HEALTH CONCERNS

ATSDR has received a petition from the Sierra Club, Northeast Ohio Group, to supplement the original health assessment and to consider radioactive contamination from RMI. The Sierra Club, in their petition, state that they are concerned with the possibility that radioactive contamination from the RMI Extrusion Plant has been accessible to residents of Ashtabula, especially to children and the elderly, and has resulted in further pollution of Fields Brook. They have asked ATSDR to "consider requiring the posting of signs along Fields Brook to the west of State Route 11" (that is where Fields Brook runs very close to homes, schools, etc.), stating "there is danger from hazardous and radioactive materials." The Sierra Club also voiced concerns about dredging and incineration of sediments from Fields Brook on November 28, 1990. They also expressed the concern of at least one RMI employee who believes his health was compromised by working at the RMI facility [4].

unauthorized disposal of TCE into the pit before 1972 is the suspected reason for the TCE contamination. The groundwater contamination plume extends about 100 feet north of the former evaporation pit, and had not been contained.

B. OFF-SITE CONTAMINATION

The RMI plant has emitted coarse uranium metal and oxide dusts from six stacks for the last 29 years, and some of that material has settled just outside the plant boundary. Soil samples from five to 250 feet outside the north fence have shown as high as 463 pCi/g of uranium. The Nuclear Regulatory Commission (NRC) guideline for allowed concentrations of uranium in soil in uncontrolled areas is only 35 pCi/g [6]. The predominant land uses in the sampled areas are undeveloped or industrial. Just beyond 500 feet from the facility, the uranium concentration falls within normal background levels for Ohio, or less than 4.4 pCi/g. The data show a parabolic trend typical of a large particle distribution as opposed to respirable particles. Table 3 shows the uranium concentrations in soils as reported in the ANNUAL ENVIRONMENTAL REPORT for the RMI Company, for the period January 1, 1988, to December 31, 1988 [7].

Table 3 - Soil Monitoring Summary for Uranium (pCi/g)

Distance from Plant	Number of Samples	Maximum Concentration (pCi/g)	Minimum Concentration (pCi/g)	Mean Concentration (pCi/g)	Comparison Value NRC Guideline (pCi/g)
5 to 250 ft. from North Fence	10	463	2.0	95.3	35
0.10 mile	4	27.8	2.4	15.4	35
0.15 mile	4	10.4	0.47	3.55	35
0.20 mile	4	2.22	0.48	1.47	35
0.50 mile	4	0.68	0.34	0.47	35
1.0 mile	4	0.67	0.17	0.39	35
1.25 to 1.5 mile	5	1.21	0.29	0.70	35
3.25 to 3.5 miles	2	0.74	0.36	0.55	35

- Note:
1. Naturally-occurring uranium concentrations in Ohio soils range from 1.2 to 4.4 pCi/g.
 2. The annual, six-inch deep composite sediment samples for the years 1987 and 1988 show levels of uranium at or below background levels for naturally-occurring uranium as shown in Table 4 (copied from ANNUAL ENVIRONMENTAL REPORT for the RMI Company for the period January 1, 1988, to December 31, 1988).

PATHWAYS ANALYSES

To determine whether neighboring residents are being exposed to contaminants from the site, ATSDR evaluates the environmental, and human components that lead to human exposure. This pathways analysis consists of five components:

- 1) A source of contamination.
- 2) Transfer through an environmental medium.
- 3) A point of exposure.
- 4) A route for human exposure.
- 5) An exposed population.

ATSDR identifies exposure pathways as completed or potential.

A. COMPLETED EXPOSURE PATHWAYS

No completed exposure pathways were identified because of the limited contamination concentrations off site. Workers on site are monitored for occupational exposure to radiological and hazardous materials.

B. POTENTIAL EXPOSURE PATHWAYS

1. SOIL

Surface soils on and immediately around the RMI facility were likely contaminated by uranium dusts emitted from the plant's stacks between 1962 and 1990 when the facility ceased production. Due to the site's proximity to schools, it is likely that children could have ingested small quantities of contaminated soil while walking along the banks of Fields Brook. Since uranium metal or oxide does not readily migrate, it is unlikely that there was any significant runoff from those areas.

PUBLIC HEALTH IMPLICATIONS

A. TOXICOLOGICAL IMPLICATIONS

Levels of exposure to uranium and all other contaminants from the RMI facility are significantly below the levels known to cause measurable health effects, and because of the fact that there were no known exposed populations off site, it is not possible to directly attribute any adverse health outcomes to contaminants from RMI.

Uranium acts primarily as a renal toxin; that is to say, it damages the kidneys and inhibits the body's ability to remove wastes from the bloodstream. If there were a completed pathway for uranium, one would expect to see an excess of people with impaired kidney function or kidney damage.

Based on the available data (ANNUAL ENVIRONMENTAL REPORTS for RMI Plant), only one potential exposure pathway appears to exist in association with the RMI Extrusion Plant, but the levels of soil contamination are too low to pose a significant health risk. Even assuming a conservative estimate for incidental ingestion by a child, it would not appear to present a human health risk from a radiological standpoint. For a conservative estimate, we may assume that a child could ingest 200 milligrams of contaminated soil per day. That could result in the uptake of roughly 46 pCi of uranium per day, which for 365 days per year would yield 0.034 μ Ci of intake per year. The Annual Limit on Intake (ALI) of uranium-238 for occupational exposure is 200 μ Ci per year for the statistically standard adult American male, who weighs 70 kilograms. For a child weighing 25 kilograms, the ALI would be divided by a factor of 10 for non-occupational exposure, and divided by a factor of two for their relative weight. The child's ALI would therefore be limited to only 10 μ Ci/yr [8]. Since the most conservative model puts the possible uptake at least 350 times below the ALI, incidental ingestion of uranium-contaminated soil does not appear to present a human health risk from a radiological standpoint.

The Lowest Observed Adverse Effect Level (LOAEL) is the level of dosage at which no adverse effects can be observed. There are three types of LOAELs, one for acute doses administered for less than 15 days, an intermediate value for doses administered for 15 to 364 days, and another for chronic doses received for more than a year.

If we also look at the chemical toxicity of uranium, we can find that the lowest chronic LOAEL is from an animal study on dogs [9]. Uranium acts primarily as a renal toxin; that is to say, it damages the kidneys and inhibits the body's ability to remove wastes from the bloodstream. The level given for mild renal effects was 9.4 mg/kg/day. For a conservative estimate of the corresponding human No Observed Adverse Effect Level (NOAEL), we divide by a factor of 1000, giving an estimated value of 0.0094 mg/kg/day. The U.S. Environmental Protection Agency (EPA) sets the safe daily intake (RfD) even lower for uranium at 0.003

C. COMMUNITY HEALTH CONCERN EVALUATION

ATSDR has addressed each of the community concerns about health as follows.

1. **Are there any radionuclides present at Fields Brook that would pose a health hazard to local school children passing through the area or to elderly persons at the local retirement home, paying particular attention to uranium, transuranics and fission products?**

Evaluation of the data available does not indicate that anyone has been or will be exposed to levels of contamination that would be expected to cause any adverse health effects. There are no community-specific health outcome data available to indicate that the RMI facility has had any adverse effect on human health. Also, there are no transuranics at the site, and the only fission product is not at a level of health concern.

2. **Should signs warning of radiation and radioactive material be posted along Fields Brook to the west of State Route 11?**

Title 10 of the Code of Federal Regulations, Part 20 (10 CFR 20), requires that only those areas be restricted and posted where access would result in a dose rate of 50 mrem per year to the public. Because there is no radiological hazard from the area around the facility, it would not be advisable to post radiation hazard signs.

3. **Is RMI considered a significant emitter of radionuclides as suggested by the EPA Draft Environmental Impact Statement for Proposed NESHAPS for Radionuclides (EPA 520/1-89-006-1)?**

No. The RMI facility was removed from the final NESHAPS document (Federal Register # 54FR51654). In addition, RMI has ceased uranium extrusion operations and has not emitted radionuclides into the environment since 1989 when DOE operations ceased.

4. **Is there any evidence that an employee at RMI suffered adverse health effects from exposure to radioactive materials at the plant?**

There was insufficient evidence presented to conclude that any of the workers' adverse health effects correspond with any known for uranium exposures, however they may be consistent with other work related exposures. The cited adverse health outcomes could be related to work practices or processes used in the fabrication of uranium metal, but not directly from the uranium itself. The referenced document mentions toxic oil syndrome in passing [11].

CONCLUSIONS

ATSDR considers the RMI Extrusion Plant at Fields Brook to be no apparent public health hazard. The available data do not indicate that humans are being exposed or that they have ever been exposed to levels of radioactive contamination off site that would be expected to cause adverse health effects. The available community-specific health outcome data do not indicate that the site has had an adverse effect on human health. There is no present evidence that Fields Brook or its banks exceed guidelines for contamination by radioactive effluents. There is however, evidence of uranium-contaminated soil on, and just outside, the RMI facility.

REFERENCES

1. Lybarger, JA; *ATSDR Public Health Assessment for Fields Brook NPL Site*, CERCLIS Number OHD980614572; November 7, 1986.
2. *REPORT ON HISTORIC URANIUM RELEASES FROM CURRENT DOE, OAK RIDGE OPERATIONS OFFICE FACILITIES*, dated June 24, 1985.
3. *ANNUAL ENVIRONMENTAL REPORT FOR RMI COMPANY EXTRUSION PLANT, ASHTABULA, OHIO*, for the period January 1, 1984, through December 31, 1984.
4. Petition to ATSDR for Public Health Assessment, August 20, 1989.
5. *1990, 1980, 1970, 1960 CENSUS OF POPULATION AND HOUSING*, Summary Tape File 1 (Ohio); U.S. Bureau of the Census, Washington, D.C.; U.S. Government Printing Office.
6. *Title 10 of the Code of Federal Regulations, Part 20 (10 CFR 20)*, 1988.
7. *ANNUAL ENVIRONMENTAL REPORT FOR RMI COMPANY EXTRUSION PLANT ASHTABULA, OHIO* for the period January 1, 1988, through December 31, 1988.
8. *Annals of the ICRP, ICRP Publication 61, ANNUAL LIMITS ON INTAKE OF RADIONUCLIDES BY WORKERS BASED ON THE 1990 RECOMMENDATIONS*; ISSN 0146-6453.
9. *ATSDR TOXICOLOGICAL PROFILE FOR URANIUM*; TP-90-29; U.S. Department of Health and Human Services, Public Health Service, Agency for Toxic Substances and Disease Registry.
10. Indian, Robert W; Rao, R.A.; *CANCER SURVEILLANCE IN THE POPULATION IN CLOSE PROXIMITY TO THE FIELDS BROOK HAZARDOUS WASTE SITE, ASHTABULA, OHIO*, and *ADDENDUM: BRAIN CANCER FOLLOW-UP AND ADVERSE REPRODUCTIVE OUTCOME SURVEILLANCE*; Case Report Number 850801, Ohio Department of Public Health, Division of Epidemiology, Dated: June 1988.
11. Letter from Dr. R. Michael Kelly, M.D., M.P.H.; dated January 8, 1988.

APPENDICES

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READER EVALUATION

Division of Health Assessment and Consultation

This questionnaire is designed to help us improve our communications. We would like to know if we have presented our findings clearly. Thank you for taking the time to respond.

- 1) Did you read the entire report? Yes No
If not, which topics did you read about? (Check all that apply.)
 Summary Environmental Exposure Health Effects Conclusions/Actions
 Community Concerns
- 2) How long did it take you to read the report?
 Less than 2 hours 2-4 hours More than 4 hours

CONCLUSIONS

- 3) Did our report clearly say if people have come into *contact* with contamination?
(Contact means to eat, drink, breathe or touch.) Check all that apply.
- | | | | | | | | | | |
|--------------|------------------------------|-----------------------------------|-----------------------------|----------------------------------|-------------------|------------------------------|-----------------------------------|-----------------------------|----------------------------------|
| <i>Soil</i> | <input type="checkbox"/> Yes | <input type="checkbox"/> Possible | <input type="checkbox"/> No | <input type="checkbox"/> Unclear | <i>Air</i> | <input type="checkbox"/> Yes | <input type="checkbox"/> Possible | <input type="checkbox"/> No | <input type="checkbox"/> Unclear |
| <i>Water</i> | <input type="checkbox"/> Yes | <input type="checkbox"/> Possible | <input type="checkbox"/> No | <input type="checkbox"/> Unclear | <i>Food Chain</i> | <input type="checkbox"/> Yes | <input type="checkbox"/> Possible | <input type="checkbox"/> No | <input type="checkbox"/> Unclear |
- 4) Did our report clearly say if health effects are likely from contact?
- | | | | | | | | |
|--------------|---------------------------------|-----------------------------------|----------------------------------|-------------------|---------------------------------|-----------------------------------|----------------------------------|
| <i>Soil</i> | <input type="checkbox"/> Likely | <input type="checkbox"/> Unlikely | <input type="checkbox"/> Unclear | <i>Air</i> | <input type="checkbox"/> Likely | <input type="checkbox"/> Unlikely | <input type="checkbox"/> Unclear |
| <i>Water</i> | <input type="checkbox"/> Likely | <input type="checkbox"/> Unlikely | <input type="checkbox"/> Unclear | <i>Food Chain</i> | <input type="checkbox"/> Likely | <input type="checkbox"/> Unlikely | <input type="checkbox"/> Unclear |

RECOMMENDATIONS

- 5) Did our report clearly indicate what we recommend be done next? (Check all that apply.)
 Collect more data Restrict or reduce exposure Health Study Health Education
 No action at this time

CONTENT

- 6) Does the information in the report support our conclusions and recommendations? Yes No

Comments: _____

- 7) Did you receive this report in the context of your job? Yes No
If yes, was enough information provided to allow you to take action? Yes No
If you needed more information, what kind? Environmental Exposure Health Effects

Comments: _____

- 8) Were your health questions answered in the assessment? Yes No

If no, what questions do you have? _____

9) Is there information in the report that you found confusing? (Check all that apply.)

- Summary
- Environmental Exposure
- Health Effects
- Conclusions/Actions
- Community Concerns

Comments: _____

10) Is there information in the report that you found unnecessary? (Check all that apply.)

- Summary
- Environmental Exposure
- Health Effects
- Conclusions/Actions
- Community Concerns

Comments: _____

11) Which of these categories would best describe you?

- 1) Concerned member of the community
- 2) Government employee
- 3) Health care professional
- 4) Other (please specify) _____

12) How did you obtain your copy of the report?

- 1) Mailed to you by ATSDR.
- 2) Went to the library to use the copy filed there.
- 3) Received from a friend.
- 4) Other (please specify) _____

Are there any other comments you would like to make about the report?

Please fold in thirds with address on outside, tape closed, and mail back to us. No postage is required. Thank you for responding.

Public reporting burden of this collection of information is estimated to average 15 minutes per response. Send comments regarding this burden estimate or any other aspect of this collection of information, including suggestions for reducing this burden to PHS Reports Clearance Officer, ATTN: PRA (0923-0018); Hubert H. Humphrey Rm 737-F; 200 Independence Ave. SW; Washington, DC 20201. This collection is authorized by law (42 U.S.C.9604(i)).



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